REMARKS

In view of the above amendments and the following remarks, reconsideration of the rejections and further examination are requested. Upon entry of this amendment, claim 1 is amended, leaving claims 1-4, 20-22, 29 and 30 pending with claim 1 being independent. No new matter has been added.

Rejections Under 35 U.S.C. §103(a)

Claim 1 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Takeshima (U.S. 4,940,523) in view of Goedicke et al. (U.S. 5,470,388) and Kume et al. (U.S. 6,024,915).

Applicants submit that independent claim 1 as now pending is allowable over this combination of prior art. Specifically, claim 1 recites, among other things, a polygonal barrel sputtering device comprising a vacuum container for containing fine particles which has a polygonal internal shape on a cross section substantially parallel with a gravitational direction, the polygonal internal shaped configured to enable the fine particles to be rolled and stirred during rotation of the vacuum container, and a rotating mechanism for rotating the vacuum container about a rotating axis which is substantially perpendicular to the cross section.

In the device recited claim 1, the vacuum container is rotated about a rotating axis which is substantially perpendicular to a cross section substantially parallel with a gravitational direction (i.e., substantially horizontal direction), and has a configuration that enables the fine particles to be rolled and stirred. Thus, the polygonal internal shape of the vacuum container enables the fine particles contained therein to fall periodically by gravity. This can improve stirring efficiency remarkably. (*See* present application specification page 4, lines 13-25).

The cited combination fails to render such a device obvious. In particular, as recognized by the Examiner, Takeshima fails to disclose or render obvious a vacuum container which has a polygonal internal shape on a cross section substantially parallel with a gravitational direction. For this element, the Examiner relies on Geodicke. Specifically, the Examiner cites "the sawtooth configuration" (i.e., directed notches 13) shown in Fig. 2 of Geodicke as teaching a polygonal internal shape.

The Examiner states that one of ordinary skill in the art would have combined Goedicke with Takeshima, since the Goedicke features would allow for emptying the drum during rotation. However, Applicants submit that one of ordinary skill in the art would not combine Takeshima with the teachings of Geodicke to arrive at a "polygonal internal shape on a cross section substantially parallel with a gravitational direction, the polygonal internal shaped configured to enable the fine particles to be rolled and stirred during rotation of the vacuum container", as recited in claim 1. In particular, Goedicke states that in the directed notches 13, the flanks are designed to be shallow in the rotation direction and steep counter to the rotation direction, so that parts 3 are fixed to the surface of the drum 1. *See* Goedicke Col. 5, lines 11-15. That is, the flanks are not configured to enable particles to be rolled and stirred during rotation of the vacuum container, but specifically configured to stop movement (e.g., stop rolling and stirring) of parts 3. Applicants note that the flanks are not for emptying, as suggested by the Examiner; the chute 11 is for emptying. *See* Col. 5, lines 5-10.

Applicants submit that Goedicke explicitly teaches away from a configuration that would enable the fine particles to be rolled and stirred during rotation of the vacuum container. Therefore, one of ordinary skill in the art would not combine the directed notches of Goedicke with Takeshima to arrive at a barrel sputtering device that has an polygonal internal shaped configured to enable fine particles to be rolled and stirred during rotation of the vacuum container. Moreover, modifying Takeshima with the Goedicke directed notches would render Takeshima inoperative for its intended use.

Therefore, since Kume does not overcome the deficiencies of Takeshima and Goedicke, Applicants submit that independent claim 1 and its dependent claims are allowable over the cited prior art.

Claim 2 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Takeshima in view of Goedicke and Kume, as applied to claim 1 above, and further in view of Kobayashi et al. (Japan 2000-109969).

Claims 3 and 20 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Takeshima in view of Geodicke and Kume, as applied to claim 1 above, and further in view of Burger et al. (U.S. Pat 6,220,203).

Claims 4, 21, 22 and 30 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Takeshima in view of Geodicke and Kume, as applied to claim 1 above, and further in view of Makowiecki et al. (U.S. Pat. 6,149,785).

Since each of these claims is dependent from claim 1 and each of these additionally cited references fail to overcome the deficiencies of Takeshima, Goedicke and Kume, Applicants submit that each of these dependent claims is allowable for the reasons discussed above.

Allowable Subject Matter

Applicants appreciate the indication that claim 29 contains allowable subject matter.

Conclusion

In view of the foregoing amendments and remarks, all of the claims now pending in this application are believed to be in condition for allowance. Reconsideration and favorable action are respectfully solicited.

Should the Examiner believe there are any remaining issues that must be resolved before this application can be allowed, it is respectfully requested that the Examiner contact the undersigned by telephone in order to resolve such issues.

Respectfully submitted,

Takayuki ABE et al.

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